

## Ch. 6: Learning through Conditioning

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### I. Learning

- a. Refers to a relatively durable change in behavior or knowledge that is due to experience
- b. Classical Conditioning
  1. A type of learning in which a stimulus acquires the capacity to evoke a response that was originally evoked by another stimulus
    - A. Also called Pavlovian Conditioning
    - B. Discovered by Ivan Pavlov, a Russian psychologist who studied digestion, around 1900
      - i. Studied what he called “psychic reflexes” which is the learned association between a stimulus and response
      - ii. The response was salivation in dogs
      - iii. Pavlov demonstrated that learned associations were formed by events in an organism’s environment
  2. An Unconditioned Association involves an association between a stimulus and a response that didn’t have to be created through conditioning. That is it happens naturally.
    - A. the Unconditioned stimulus (UCS) is a stimulus that evokes an unconditioned response without previous conditioning
    - B. The unconditioned response (UCR) is an unlearned reaction to an unconditioned stimulus that occurs without previous conditioning
  3. A conditioned association involves an association between a stimulus and a response that was established through conditioning
    - A. The conditioned stimulus (CS) is a previously neutral stimulus that has through conditioning acquired the capacity to evoke a conditioned response
    - B. The conditioned response (CR) is a learned reaction to a conditioned stimulus that occurs because of previous conditioning
  4. A trial in classical conditioning consists of any presentation of a stimulus or pair of stimuli
  5. Process of classical conditioning
    - A. Before conditioning:
      - i. NS tone -> no response
      - ii. UCS (meat powder) -> UCR (salivation)
    - B. During Conditioning
      - i. NS (tone) -> UCS (meat powder) -> UCR (salivation)
    - C. After
      - i. CS (tone) -> CR (salivation)
- c. Operant Conditioning
  1. A type of learning in which behavioral responses are controlled by the consequences of performing the behavior
  2. Also called instrumental learning (also Trial & Error Learning)
    - A. Term coined by Thorndike
    - B. Thorndike’s Law of Effect: if a response in the presence of a stimulus leads to satisfying effects, the association between the stimulus and a response is strengthened
  3. B.F. Skinner showed that organisms tend to repeat those responses that are followed by favorable consequences
    - A. Skinner coined the term operant conditioning
    - B. He emphasized the role of reinforcement in influencing behavior
    - C. Reinforcement occurs when an event following a response increases an organism’s tendency to make that response
    - D. Common experimental device was the Skinner Box, also called the operant conditioning
  4. Process of Operant Conditioning
    - A. Acquisition and Shaping
      - i. Shaping consists of there enforcement of closer and closer approximation of a final desired behavioral response
      - ii. Shaping can be used to train animals to perform unnatural behaviors.
    - B. Extinction
      - i. Gradual decrease in response because the response is not followed by a reinforcer

- ii. There are various degrees of resistance to extinction
- C. Stimulus Generalization
  - i. Responding increases in the presence of a new stimulus that resembles original discriminative stimulus
- D. Stimulus Discrimination
  - i. Responding does not increase in the presence of a new stimulus that resembles original discriminative stimulus
- E. Reinforcement
  - i. Skinner said that reinforcement occurs whenever an outcome to a behavior increases the rate at which the behavior is performed
  - ii. Outcome will be an effective only if it occurs immediate after behavior
  - iii. primary reinforcer: satisfy biological needs. Ex. food
  - iv. Secondary, or conditioned, reinforcer acquires reinforcing qualities by being associated w/ primary reinforcer's. Ex. a whistle
- F. Schedules of Reinforcement
  - i. Continuous reinforcements
  - ii. Intermittent, or partial,
  - iii. Intermittent reinforcement makes a response more resistant to extinction than fixed schedules
  - iv. Types of Intermittent Reinforcement
    - Fixed-ratio schedule or Variable-Ratio Schedule
    - Fixed or Variable Interval schedule
    - Variable schedules result in higher resistance to extinction than fixed schedules
- G. Types of Reinforcement
  - i. Positive reinforcement occurs when a response is strengthened because it is followed by the presentation of a rewarding stimulus
  - ii. Neg. reinforcement occurs when a response is strengthened because it is followed by the removal of an aversive unpleasant stimulus
    - Escape Learning: organism acquires a response that decreases or end some aversive stimulation
    - Avoidance Learning: organism acquires a response that prevents some aversive stimulus
  - iii. Note that for both positive. and neg. reinforcement there is a tendency for a given behavior to occur
- H. Punishment
  - i. An event following a response weakens the tendency to make that response
  - ii. Involves the presentation of an aversive stimulus thereby decreasing the tendency of a response
  - iii. Usually less effect than reinforcement